

REMARKS

Status of the Claims

Claims 1, 2 and 5-9 are pending in this application. By this Amendment, claim 1 is amended. Claims 3, 4 and 10-15 previously were canceled.

Summary of the Official Action

In the Official Action, claims 1, 2 and 5-9 were rejected under 35 U.S.C. 102(b), as anticipated by U.S. Patent Application Publication No. 2001/0027011 (Hanaoka).

Reconsideration and withdrawal of the rejection respectfully are requested in view of the above amendments and the following remarks.

Claim Amendments

The rejection of the claims over the cited art respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, claim 1 has been amended more clearly to recite various novel features of the claimed invention, with particular attention to the Examiner's comments. Support for the amendments may be found in the original application. No new matter has been added.

Claimed Invention

The present invention relates to a novel semiconductor device. In one aspect, as recited in claim 1, the claimed invention relates to a semiconductor device comprising a substrate, an electrode, the electrode being formed on the substrate, and a through-hole, the through-hole being formed through the electrode and the substrate in a stacking direction of the electrode and the substrate, and having a first diameter in the substrate that is smaller than a second diameter in the electrode. The semiconductor device further comprises a conductive member inserted into the through-hole, an insulating material, being disposed between the electrode and the conductive member, the insulating material including a wall portion located higher than at least the electrode, and at least an interlayer dielectric being formed between

the substrate and the electrode, the through-hole being formed in the interlayer dielectric, and surfaces of the interlayer dielectric and substrate in the through-hole being formed to have a level difference in a boundary area between the substrate and the interlayer dielectric, the conductive member being formed over the wall portion of the insulating material from the through-hole and being connected with the electrode.

Prior Art Distinguished

Applicant submits that the prior art fails to anticipate the claimed invention. Moreover, Applicants submit that there are differences between the subject matter sought to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

The Hanaoka '011 publication relates to a semiconductor device and manufacturing method therefor, circuit board, and electronic equipment, and discloses a semiconductor device including a substrate, an electrode, a through-hole formed through the substrate and the electrode, a conductive member, an insulating material, and at least an interlayer dielectric formed between the substrate and the electrode. However, Applicant submits that the Hanaoka '011 publication fails to disclose or suggest at least the above-identified features of the claimed invention. Specifically, Applicant submits that the Hanaoka '011 publication fails to disclose or suggest at least the combination of features including a through-hole through the substrate and the electrode having a first diameter in the substrate that is smaller than a second diameter in the electrode, as disclosed in the present application and recited in claim 1. Rather, in the Hanaoka '011 publication structure, the through-hole has a first diameter in the substrate that is *greater* than a second diameter in the electrode (see Figs. 5-9 and 11).

For the above reasons, Applicant submits that claim 1 is allowable over the cited art.

Claims 2 and 5-9 depend from claim 1 and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination

with the features of its respective base claim and is believed allowable in its own right.

Individual consideration of the dependent claims respectfully is requested.

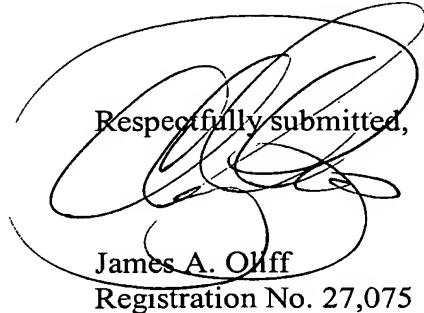
Entry Under 37 C.F.R. 1.116

Entry of the Amendment is proper under 37 CFR §1.116 since the amendments and remarks: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any significant new issue requiring further search and/or consideration (as the amendments and remarks merely amplify issues previously discussed throughout prosecution); (c) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments and remarks are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the remarks, withdrawal of the final rejection and further examination of the claims respectfully are requested.

Conclusion

Applicant believes that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submits that the application is in condition for allowance. Favorable consideration of the claims and passage to issue of the application at the Examiner's earliest convenience earnestly are solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.



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JAO:CPW

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